Social Dimensions of Pandemics

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Abstract

The viruses coexist for approx. 300 million years with the humans. Sometimes viruses can infect people on a large scale. But how was the current pandemic possible?

Global warming is causing extreme weather events that have led to an increase in infectious diseases. The new climate can support epidemiological vectors for longer periods of time, creating more favorable conditions for replication and the emergence of new vectors.

In the case of emerging infectious diseases, it is considered that there is a border that has already been crossed. Viruses normally have a native area (their "reservoir") from which they should not be pushed out. This creates a dangerous intimacy, with "hotspots" that include locations such as markets, which become real hotbeds of epidemics.

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Viruses coexist for approx. 300 million years with humans. Sometimes viruses can infect people on a large scale. But how was the current pandemic possible?

Isolations and quarantines caused by the pandemic, by reducing daily and industrial activities, including tourism, (Team 2020) have had a strong effect on the environment and climate by reducing pollution. In China, there has been a 25% reduction in carbon emissions (Myllyvirta 2020) and a 50% reduction in nitrogen oxide emissions. (Zhang et al. 2020) But the pandemic has also provided new opportunities for illegal activities with negative social effects, such as deforestation of the Amazon rainforest (Roberton and Bodo 2020) and in Africa. (Deliso 2020)

Global warming is causing extreme weather events that have led to an increase in infectious diseases. The new climate can support epidemiological vectors for longer periods of time, creating more favorable conditions for replication and the emergence of new vectors. (Epstein 2011)

Diseases caused by coronaviruses have occurred more frequently in recent decades. Zoonotic diseases (in which the virus passes from animals to humans) have now accounted for 75% of all emerging diseases, facilitated by climate change through rapid changes in temperature and humidity. The most fundamental way to protect ourselves from zoonotic diseases is to prevent destruction of nature. Where ecosystems are healthy and biodiverse, they are resilient, adaptable and help to regulate diseases." (United Nations 2020b) The United Nations Environment Program explicitly states the link between nature destruction (including due to climate change) and the COVID-19 pandemic. (United Nations 2020a)

The World Bank also says climate change increases the risk of epidemics, including through excessive deforestation that is believed to be responsible for 31% of zoonotic diseases. (Boukerche and Mohammed-Roberts 2020) Climate change and deforestation increase animal migration and the link between them and humans, facilitating the transmission of viruses.

Increasing humidity also facilitates transmission. (Environmental Health News 2020) Climate change also leads to a decrease in the number of animals in the population, and therefore less genetic diversity, along with increasing conflicts between nations, human migration, and less efficient medical and sanitation systems, increasing the risk epidemics. (Ferrell 2020)

It should be noted that if the global temperature increases the human body's ability to fight the virus decreases, while bats will be less affected. (Worland 2020)

Depletion of food resources due to climate change can lead people to hunt wild animals, including bats, which are possibly carriers of coronavirus. (AlHusseini 2020)

In July 2020, the United Nations Environment Program and the International Institute for Animal Research published a report entitled "*Prevention of the next pandemic - zoonotic diseases and how to break the chain of transmission*", which states that the frequency of zoonotic diseases is increasing due to the destruction of nature that led to “high demand for animal protein, unsustainable agricultural practices and climate change”. (United Nations 2020a)

In the case of emerging infectious diseases, it is considered that there is a border that has already been skipped. (Guttinger 2020) Viruses normally have a native area (their "reservoir") from which they should not be pushed out. This creates a dangerous intimacy, with "hotspots" that include locations such as markets, which become real hotbeds of epidemics. David Quammen, author of *Spillover*, states that:

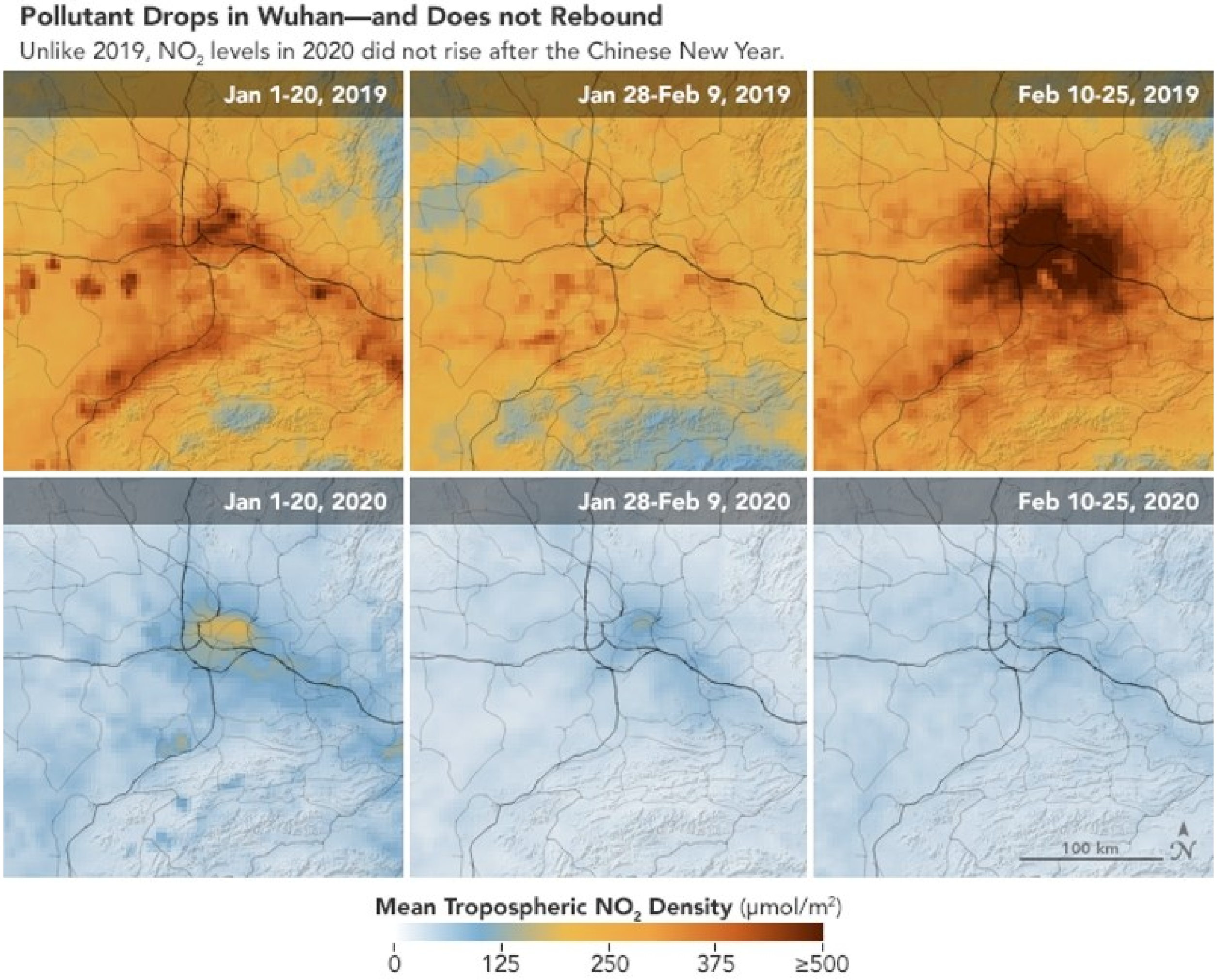
> "We are invading tropical forests and other wild landscapes, which are home to so many species of animals and plants - and inside those creatures, so many unknown viruses. We cut down the trees; we kill the animals or put them in cages and send them to the markets. We disrupt ecosystems and shake viruses from their natural hosts. When this happens, the viruses need a new host. Often we are.” (Quammen 2012)

This view of viruses has implications for how risk management is managed. If our emphasis is on the idea of distinct realms to be kept at a distance, the emphasis is on identifying locations where the boundary between them is violated. This creates a dangerous intimacy. These "hotspots", which include locations such as wetlands, are now becoming key areas of intervention that need to be closed or monitored.

Climate is an influential driving force of vector-borne diseases. Infections caused by vectors have distinctive characteristics that determine pathogenicity. These include the rate of survival and reproduction of the vector, the level of activity of the vector (i.e. the rate of feeding) and the rate of development and reproduction of the pathogen in the vector or host. Climate change substantially affects the reproduction, development, distribution and seasonal transmission of diseases.

Five of the warmest years on record have occurred since 2010, when the rate of melting glaciers in Antarctica was highest, and global sea levels rose by eight centimeters in the last century. Many primordial viruses to which modern humans have reduced immunity have survived in the Arctic ice. Climate change is affecting ecosystems and allowing diseases to cross their invisible borders. As the tropical climate expands, diseases such as malaria and the Zika virus will become a threat in new locations. The WHO estimates that a 2-3 ° C increase can increase the risk of malaria by 5%. (Sfetcu 2020)

Through direct action over the last hundred years, and especially in recent years, humans have destabilized the ecosystem by forcing many living things, including viruses, to find new hosts. According to Dr. Dawn Wright quoted by *Forbes*, the COVID-19 pandemic is an undesirable side effect of human destabilization of animal habitats: “The novel coronavirus was very likely to have originated in bats,” Wright said. “Through our activities, through our urbanization, through the ways that we treat wildlife, we are disrupting or destroying their habitats. Species such bats have to shift their distribution accordingly. As they move to get away from what is disrupting them or killing them, sometimes it brings them and their diseases closer to where people are.” (Kantor 2020)


Pollutant Drops in Wuhan—and Does not Rebound
Unlike 2019, NO₂ levels in 2020 did not rise after the Chinese New Year.
Jan 1-20, 2019
Jan 28-Feb 9, 2019
Feb 10-25, 2019
Jan 1-20, 2020
Jan 28-Feb 9, 2020
Feb 10-25, 2020
100 km
N
Mean Tropospheric NO₂ Density (μmol/m²)
0
125
250
375
≥500

Images from NASA's Earth Observatory show a sharp drop in pollution in Wuhan when comparing NO2 levels in early 2019 (top) and early 2020 (bottom). Source: (Earth Observatory 2020)

Globalization allows infectious diseases to spread rapidly around the world. (Daulaire 2011) The world is more interdependent than at any other time in history. People move much faster than before, spreading disease faster and to more places. Before globalization, a virus was naturally isolated. But at the same time, global transport and trade in agricultural products have made it possible to overcome species barriers.

When a population is infected with a new disease for which they have not developed antibodies through generations of previous exposures, the new disease tends to spread.

We are part of the biodiversity of this planet. And it is an integrated system, says Sean O'Brien President and CEO of NatureServe. According to the UN, we could lose one million species in the next two decades. And we don't really know the impact we have on the extinction of the species. (O' Brien 2020)

The German philosopher Markus Gabriel considers that the crisis triggered by SARS-CoV-2 is only the first of many, the most serious of which will be ecological. (Carbajosa 2020) But he hopes that we will emerge from the pandemic a more moral society and act more constructively in the climate crisis, to the detriment of globalization and neoliberalism.

Rob Wallace believes that the main causes of the pandemic are, in particular, the dynamics and pressures of a global economy. (Wallace 2013) He highlights agricultural practices and commercial interests as drivers of the spread of disease. Changes in animal husbandry, the way they are kept, circulated and processed, can lead to the emergence of potentially dangerous new strains. For example, Porcine Reproductive and Respiratory Syndrome (PRRS) emerged in the United States in the late 1980s and spread rapidly in the pig population around the globe, but became dangerous only when intensive farming became a common practice in closed shelters, while increasing the size of the herds, removing piglets from their mothers and introducing the widespread use of artificial insemination. (Más and Melero 2013)

Richard Sennett, a sociologist and professor at the London School of Economics, is concerned about the declining welfare state, which he says is due to current liberalism that has limited the response to the crisis. (Sennett 2004) He believes that we need to return to the concept of individual housing in cities and we will need to rethink our growth.

Esther Duflo, Nobel Prize winner, believes that the challenge is to try to maintain jobs and wages once we have overcome the current situation, (Mars 2020) fearing that large companies will opt for automation.

Everything on our planet is connected. The disappearance of caterpillars, for example, may have a major impact on the ecosystem, including humans.

Economic globalization implies the interconnectedness of world economies and the interdependence of internal and external supply chains. (Conley 2000) As economies increase levels of integration, any global financial and economic turmoil can cause a global recession. (Peckham 2013)

Today, Europe is importing a viral epidemic. The epidemic creates more confusion here than in the place of origin. Europe is currently in a state of relative turmoil, between nations and between aspirations. The coronavirus pandemic is considered by Nancy and Esposito a product of globalization. (Nancy and Esposito 2020)

Now, eradicating the virus is no longer enough. The contagious brutality of the virus is spreading as administrative brutality. There is a need to select those eligible for treatment (plus existing economic and social injustices.)

The viral magnifying glass magnifies the contradictions of our society and our limitations.

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